SURVEY RESEARCH OF THE CANNED CRAFT BEER INDUSTRY

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of the Requirements for the Degree

Bachelor of Science

By

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ABSTRACT

This study on the canned craft beer industry was done to see whether or not a significant correlation between one's age and their willingness to purchase craft beers in cans exists. Furthermore, it sets out to test how creating further consumer awareness highlighting the beneficial aspects of cans versus bottles could affect one's purchasing decisions.

In order to test the hypothesis that millennials are more open to purchasing canned craft beer, the statistical analysis software SPSS has been utilized. Frequencies have been run on every survey question to obtain an analysis of the entire population. Chi-square variance tests and independence sample t tests were utilized to examine any correlation between millennials and non-millennials.

As expected, it has been determined that millennials are more open to purchasing craft beers in cans. Furthermore, boosting the promotion of cans over bottles would likely increase the purchasing for all age groups. Craft brewers should redirect some of their marketing strategy towards a younger demographic. The concept of their marketing plan should focus on the idea of a convenient product that has no compromise of taste.

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Chapter 1

INTRODUCTION

As of March 2013, there were 2,360 reported craft breweries throughout the United States (Brewers Association, 2013). This statistic accounts for 47.6% brewpubs, 48.3% microbreweries, and 4.1% regional craft breweries. According to the Brewers Association, craft breweries are responsible for an estimated 108,440 jobs. In 2012, this industry experienced a 17% growth in total dollars and 15% in total volume (Brewers Association, 2013). From 2011 to 2012, craft brewing saw a drastic growth of 1.76 million barrels of beer sold. Finally, the total retail dollar value was estimated to be $10.2 billion, a substantial jump from the previous year (Brewers Association, 2013).

The previous statistical values clearly demonstrate the recent success of the craft beer industry. Many of these breweries thrive off product differentiation, taste, unique labels, locality, etc. Amongst the many qualities that place craft beers in the upper echelon of the beer family is consumer perception. Until recently, a majority of consumers often connected the phrase “craft beer” with a bottle. However, many craft breweries have recently introduced canned beers to their line of production. Currently, 262 craft breweries have implemented cans in the United States. Of the 824 different brands that been released in cans from 2012 to 2013, 528 have been packaged in 12 oz. cans, 276 in 16 oz. cans, and the remaining 20 in varying sizes (Canned Craft Beer Stats, 2013). Some notable names include Sierra Nevada, New Belgium, and Boston Beer Brewing Companies.

Despite canned beers being introduced by brewers in 2002 and experiencing positive sales, producers continue to fight the perception that craft beers in cans lose their "premium status" without the bottle. This is possibly more prevalent amongst older beer drinkers as they are more rigid with their purchasing decisions. Millennials, generally living a more carefree lifestyle, appear much more open to purchasing craft beers in cans. Furthermore, enhancing consumer awareness amongst millennials concerning the beneficial aspects of aluminum cans vs. bottles could have a huge influence on consumer perception.

Appealing to the millennial demographic by highlighting drinkability, environmental statistics of cans, and the increased "on-the-go" efficiency of this packaging would be very beneficial to craft brewers and consumers alike. For instance, consumers must be informed that almost every craft beer can contains a water based epoxy that assures the aluminum and beer never meet each other, solidifying an excellent taste. Concerning the environment, aluminum cans are 100% recyclable and have 68% recycled content, the highest of any beverage package material (Can Manufacturers Institute, 2013). Finally, cans present the best opportunity for enjoying beer on the go as many cities forbid the usage of bottles in public spaces such as parks and beaches.

Problem Statement

What can be done to get rid of the stigma attached to canned craft beers amongst the older demographic (34+ years of age)?

Hypothesis

The millennial demographic (21-33) is more open to purchasing craft beers in cans than other age groups. Creating consumer awareness amongst both milliennials and the older demographic highlighting the beneficial aspects of cans versus bottles will further enhance their willingness to purchase.

Objectives

1) To examine how consumers perceive canned craft beers prior to gaining knowledge about certain characteristics.

2) Compare the millennial demographic (21-33) against the rest of consumers.

2) To see how highlighting the positive aspects of cans versus bottles changes millennials' mindset and purchasing decisions.

Significance of the Study

Craft breweries are a fast expanding sector of the alcohol industry that make up 6.6% of the entire United States beer market (Beer Association, 2013). Taking a closer look at how consumers will react to canned craft beers could be a strong indicator of what to look forward to in the future. This study is very important for both the consumer and producer. The consumer, especially the younger demographic, ultimately wants to figure out if paying extra for a craft beer that is not bottled is worth it. The producer wants to know if it is economically feasible and smart to continue canning their beers. Gaining a deeper understanding about consumer perceptions and willingness to buy is the deciding factor that could decide the future of craft beers in cans.

Chapter 2

REVIEW OF THE LITERATURE

Craft Beer Industry History

Craft breweries are part of a fast expanding industry despite being very small in scale compared to the entire beer market. Craft breweries make up 6.6% of the entire United States beer market but have experienced 17% growth in total sales since 2012 (Beer Association, 2013). According to Kleban and Nickerson (2011), craft breweries tend to be independent and produce fewer than 6 million barrels each year. The concept of being independent means that at least 75% of the company is owned by someone who is a craft brewer themselves. By introducing non-traditional brewing methods to coincide with conventional ingredients such as malted barley, they are able to create full tasting beers. Microbreweries thrive off product differentiation.

Kleban and Nickerson (2011) explain how there are 6 categories of craft breweries depending on total output of barrels per year. The list from smallest to largest goes in this order: microbreweries, brewpub, contract brewing company, regional craft brewery, and large brewery. To be classified a microbrewery, at least 75% of beer must be sold off-site and less than 15,000 barrels per year can be produced (Beer Association, 2013). A brewpub primarily sells their product at a restaurant or bar, with at least 25% of beer sales on site (Beer Association, 2013). Contract Brewing Companies hire another party to produce their beer. The Beer

Association (2013) goes into deeper detail by stating, “The contract brewing company handles marketing, sales, and distribution of its beer, while generally leaving the brewing and packaging to its producer-brewery.” Finally, a large brewery is one that has a yearly beer production of 6,000,000 barrels or more (Beer Association, 2013).

Kleban and Nickerson (2011) continue to reiterate the concept of product differentiation in stating, “competition within the domestic craft beer segment and other high quality beer categories is based on product quality, consistency, freshness, and taste. Craft breweries must also be keen in their ability to produce by utilizing a variety of methods, mainly: promotional tactics, customer satisfaction programs, distribution costs and price.” The most competitive segment of the craft brewery segments is microbreweries due to the fact there are many of them but make up a small portion of the market share amongst the total beer market (Beer Association, 2013). Although national breweries tend to have the financial capability for expensive promotion, microbreweries thrive off local consumers that desire a “unique” product. Strong competitors are in the international market as imports make up a strong percentage of craft beer sales. Furthermore, the general beer segment continues to lose nearly 1% of market share to the wine segment each year since 2003 (US Census Bureau, 2013).

Despite the strong presence of large National Beer companies, the Global Market Information Data Resource (GMID) (2012) states that the “movement of smaller craft breweries has been extremely dynamic.” In fact, there are around 100 new microbreweries opening up across the United States each year. Despite this significant growth, GMID (2012) shows that it is very hard for these small-privatized labels to gain a significant share of the United States beer market due to the three-tier system that enforces varying regulations in different states. Boston Beer Co Inc., Sierra Nevada Brewing Company, and New Belgium comprise the top three craft breweries in the United States but only make up 1.8% of national beer shares in volume (Beer Association, 2013). A strong majority of the total United States beer sales in total volume belong to MillerCoors LLC and AB InBev. Furthermore, GMID explains how many big corporations such as these two are buying out craft breweries, leading a trend towards mergers. Along this topic, the top four brands in the US market have similar inexpensive pricing strategies of $5-$6 per six pack. This competitive marketing segment makes it essential for craft breweries to differentiate their generally higher priced products.

Various studies have been completed attempting to project craft beer market growth over the next few years. Infiniti Research Ltd conducted a research highlighting where they believe the market will be in 2016. Contributing researchers to this study believe the craft beer market will grow at a rate of 17.46 over the span of 2012-2016. Much of this projection is based on an apparent change in consumer taste and desire for craft beer. Furthermore, they believe a huge contributing factor to this growth rate is the addition of cans to many packaging lines for craft breweries. Along with the three big craft breweries mentioned in the previous paragraph, contributors to this report also discuss a list of other craft breweries making an impact in the craft beer market. This list goes includes the following: Anheuser Busch Inc., Bell's Brewery Inc., Boulevard Brewing Co., Deschutes Brewery Co., Lagunitas Brewing Co., Matt Brewing Co., MillerCoors LLC, and Oskar Blues Brewing Co.

Although the numerous studies on the craft beer industry may vary, there appears to be one reappearing theme. Even though the market is somewhat dominated my mass-producing brewing companies, the number of small craft breweries continue to increase rather steadily. Stanford Professor Glenn Carroll (2013) believes that these apparently contradictory trends may be in fact be interrelated and have some sense of organizational ecology.

Study on Consumer Perception

Many factors come in to play when analyzing consumer perception concerning a particular brand of beer. Looking at cans vs. bottles implies a variety of characteristics including price, taste, labels, etc. that influence overall perception. Allison and Uhl (1994) attempt to explain this complex relationship in their survey study of beer brand identification on taste perception. Their study strives to prove that beer drinkers cannot distinguish between two unlabeled brands based on taste, strengthening the argument that perception is what drives consumer purchasing.

To perform this study, 326 randomly selected beer drinkers were given an unlabeled 6 pack of beer, consisting of multiple regional and national brands with differing taste characteristics. The taste test proved there was no difference between the brands at a .05 significance level. If the p-value is lower than .05, the null is rejected and relationship is concluded. Allison and Uhl (1994) found a strong correlation. In fact, most respondents couldn't even distinguish their favorite brand from others.

The label test performed by Allison and Uhl discussed in the previous paragraphs show that knowing the label of beer prior to the survey resulted in much higher ratings on the specified categories of taste, once again strengthening the argument that perception is a huge factor in gaining purchasing and brand loyalty. In relation to cans vs. bottles, this study shows that the main focus must be on marketing efforts that emphasize certain characteristics whether it be environmental/sustainability issues, convenience, label designs, etc. Huffington (2012) demonstrates this concept in her related survey study as a mere 44% of respondents correctly identified a canned Sierra Nevada Torpedo vs. bottled when the beer was poured into cups. Therefore, creating enhanced consumer awareness is vital in influencing a certain product characteristic such as cans over bottles.

Addressing Survey Issues and Selecting Survey Method

William M.K. Trochim's study examines multiple issues that must be considered when deciding a proper survey method. The first issue discussed is population issues. Some of the various factors include whether or not the population can be counted, literacy issues, language barriers, and most importantly whether or not the respondents will cooperate (Trochim, 2006). Many people have very busy schedules or simply do not want to partake in a survey. Furthermore, some surveys try to examine controversial subjects and respondents don't feel comfortable helping out with the research. The final aspect of population issues is geography. Some survey requires the study to examine a wide geographic range, which makes proper findings less feasible (Trochim, 2006).

The next important survey aspect to consider are issues with the questions that will be asked. It is important to decide what types of questions are to be asked, how complex they will be, and whether or not screening questions will be needed (Trochim, 2006). For example, in the case of an alcohol survey, it is mandatory to have an age screening question to assure no one under 21 completes the survey. Quite possibly the most important part of the questioning is the actual content and how it relates to the population being surveyed. The respondent should have at least some background knowledge of the topic of study being examined (Trochim, 2006). Once again, this applies to an alcohol study as the respondent should be a consumer of the product being discussed whether beer, wine, spirits, etc.

The next issue is one that every survey administer attempts to avoid, bias issues. A main concern for many people is standing out socially. No respondent wants to be embarrassed, feel unintelligent, etc. so they are often tempted to lie (Trochim, 2006). This is often more of an issue when delivering surveys face-to-face. Trochim explains some tactics to approaching a face-face survey. For instance, an interviewer may pretend to listen less attentively for questions that could potentially put the respondent in an awkward position. Furthermore, they could avoid asking the question all together (Trochim, 2006).

This leads into the discussion of deciding what form of survey to conduct. Surveys can be broadly divided into two main categories, questionnaires and interviews (Sincero 2012). Questionnaires generally contain close-ended questions and can be both self and group administered. Self-administered tests are often referred to as mail survey. However, mail surveys generally don't result in the best response rate so many surveyors now utilize web survey resources (Sincero 2012). Questionnaires are often regarded as best for conducting consumer research, but presents more limited responses compared to interviews (Sincero 2012).

Clearly, interviews are a much more personal form of interviewing. Different forms of interviewing include phone interviews, face-to-face interviews, and online interviews (Sincero 2012). One main advantage is that interviewing offers time to conduct follow up questions based on the responses given. However, personal interviews are extremely time consuming, a common problem faced by many surveyors (Sincero 2012).

Survey Research on Social Networks

Survey research is a measurement tool that helps assess particular opinions, feelings, concerns, etc. in various fields of study. This study utilizes survey research to examine consumer perception of canned vs. bottled craft beers. Due to the fact this is a rather unexplored area of study, it is important to take every measure possible to gain a fair population representation.

The most important part of creating a fair survey study is targeting a sample population that accurately represents a larger population. Sampling is a very fickle form of market analysis as it is open to selection bias through unique population demographics (Brickman-Bhutta, 2000). Another common problem is a small sample size, as it may not accurately estimate unknown parameters. Therefore, it is essential that proper survey techniques are utilized to assure the most accurate results possible. Brickman-Bhutta (2000) analyzes the various new opportunities of Internet research methods through social networks, stressing distribution efficiency while maintaining validity. Furthermore, Brickman-Bhutta highlights the multiple challenges that exist with Internet research methods.

According to Brickman-Bhutta (2000), "Online social networking sites offer new ways for researchers to run surveys quickly, cheaply, and single-handedly – especially when seeking to construct "snowball" samples of small or stigmatized subsets of the general population." Out of all the social networking sites, Facebook is best suited for performing market research because each user has their own set of online friends while also having access to millions of users worldwide if needed. This is especially relevant to the study of canned vs. bottled craft beers as the study targets the younger demographic between the age of 21 and 33, which is an easily accessible demographic.

Along with being the biggest and fastest growing social network in the world, Facebook presents various other positive qualities. For instance, Facebook provides information and designated pages for different interests, education levels, and hobbies that could be used to analyze sub populations of beer drinkers. Also, this form of social networking is becoming more and more representative of the United States population. According to O'Dell (2011), nearly 43% of the American population uses Facebook at least once a month compared to only 7% on twitter. Furthermore, a strong majority of the Facebook population falls under the age demographic of 21-25.

One of the biggest research methods discussed in Brickmann-Bhutta's (2000) study is called snowballing, a chain-referral type of online survey. This technique is useful in that it takes a small sample population related to a certain population, and asks these individuals to recommend others for the survey study based on certain characteristics. Doing this is beneficial in that it gradually increases the sample size and targets desired subpopulations. For the study of consumer perception of canned craft beer vs. bottled, it could be very useful to delineate the population into various groups such as college undergraduate, graduate, post-graduate work etc. Furthermore, people feel more willing to offer up personal information such as income, marital status and current living location online rather than face-to-face. However, the only downside as mentioned by Brickmann-Bhutta (2009) is the possibility for sample bias, which needs to be avoided. Some of the other potential problems according to Schmidt (1998) include incomplete responses, unacceptable responses, and multiple submissions. These are all risks that can be avoided by taking the proper measures.

Chapter 3

METHODOLOGY

Procedures for Data Collection-

Consumer perception is the main point of focus in this survey study. The first portion of the survey will measure the current level of knowledge and perception concerning canned versus bottled craft beer. Once this area of the survey is completed, consumers will be asked to read a list of qualities comparing aluminum cans versus bottles. Furthermore, the survey will measure the level of importance that drinkability convenience, recycling, pricing, etc. has when it comes to purchasing decisions. The final portion will attempt to analyze how consumer perception is changed with new awareness and whether or not future purchasing decisions will vary. The hypothesis states that millennials are more open to purchasing canned craft beers.

In order to fulfill the survey requirements, a sample size of 150+ will be needed. Of the desired 150 respondents, at least 75 will be of the age range 21-33 and the other half will fall under the age range of 28+. This gives the surveyor a chance to compare data from millennial respondents against the rest of the population. A mix of primary and secondary data will be utilized to perform the necessary statistical analysis. Online survey distribution via the social network Facebook will be utilized to reach the quota of 75+ respondents in the age group 21-33. Facebook and Email will be used to obtain the desired 75+ respondents above the age of 33. Surveys will be hand distributed throughout the process as well to help meet the desired level of responses. Ultimately, there is no limit on the sample size as bigger samples help limit bias and statistical error. The fluctuant time range of when the data must be obtained is from September 2013-November 2013. This will give ample time to perform the desired statistical analysis and test the hypothesis.

The survey will begin with two screening questions. The first one will determine the age of the respondent. If the respondent is under 21 years of age, the survey will be terminated. The next screening question asks what types of beers they have purchased in the past month. The list includes domestic, imported, craft, and none of the above. Once again, the survey will be terminated if a "none of the above" response is provided. These two questions will be presented on the first page of the survey.

This canned beer study will consist of 15 questions. The survey format will be comprised of eight ordinal, four nominal, and three ratio questions. Three demographic questions including gender, age, and income will also be included to help analyze our results.

Procedures for Data Analysis

A .05 level for extreme significance and .1 level for moderate significance will be used for any test that examines a correlation. A list of the analysis functions that will be utilized include the following: frequencies, descriptives, chi square tests of variance, and independent sample t tests. Once the data is gathered, frequencies will be run on each question to make sure no bad data was obtained. "Bad data" means that a respondent answered with a number that does not correspond with the survey options. If bad data is present, it will be necessary to recode and add the unwanted data as "system missing." This is a very important step as not doing so would skew our data, a very concerning possibility for survey analysis.

Once all bad data is removed, frequencies will be run on every question to obtain a statistical overview of the entire population. It is important to note any skewed data or interesting trends before subdividing the data. Once results from the total population are obtained, the data on the spss software will be recoded into two groups, millennials and non-millennials. Therefore, all respondents of age groups 21-33 will be recoded and entered into the system as 1 and the rest of the population will be recoded and entered as a 2. This makes it possible to test the target population against the older demographic when performing chi square test of variance and independent sample t tests.

The first test that will be run is a chi square variance test comparing what types of beer the respondents had purchased over the past three months. The list will include domestic, imported, and craft. The next two tests will be independent sample t tests to determine how much the two age groups spend on beer in a typical month and the number of 12 oz. bottles/cans of beer they purchase in a typical month. The remaining questions will be analyzed with chi square tests of variance. All of the data except for questions 11 and 13 will be analyzed in the exact same fashion.

The two questions mentioned previously will require a recode of the data to obtain the desired results. For example, all of the respondents that responded to question 11 with 70% or higher will be recoded and entered into the system as a 1 and the rest of the responses will be recoded and entered into the system as a 2. The similar procedure will be performed for question 13 except the data will be analyzed at the 80% level instead of 70%. These two questions will be the main focus on determining whether or not to accept the null hypothesis. As mentioned previously, a p-value of .05 will exemplify strong significance to accept the null and a p-value of .1 or less will represent moderate significance.

Assumptions

It is assumed that each respondent answered the survey questions truthfully. Furthermore, we will assume that the sample population of 150+ accurately reflects a larger population. Finally, it will be assumed that respondents generated via the social network Facebook are similar to the respondents located in San Luis Obispo County.

Limitations

This study will obtain most of its responses from the San Luis Obispo and Bay Area counties. These counties may not accurately reflect California and the United States. Furthermore, this survey is limited to actual "beer drinkers" rather than testing how raising consumer awareness affects the entire population. Finally, the study is limited to individuals who are willing to participate in the survey research.

Chapter 4

DEVELOPMENT OF THE STUDY

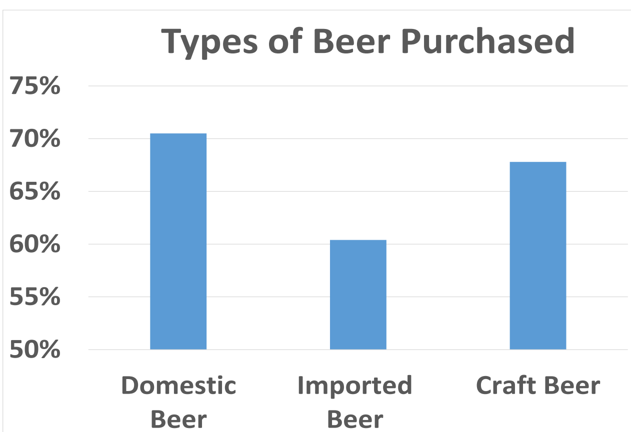
Empirical Results for Canned Craft Beer Study (Overview of Total Population):

Age Distribution	
21-24	42%
25-28	7%
29-33	7%
34-38	3%
39-44	3%
45-50	4%
51-56	10%
57-64	14%
65+	7%

-As expected, the age demographic of 21-24 had the largest share of responses at 42%

-The rest of the data was fairly evenly represented with the age range of 57-64 having the second highest showing at 14%

- Middle aged respondents, 34-50, appear to be the minority demographic (combined 10%)



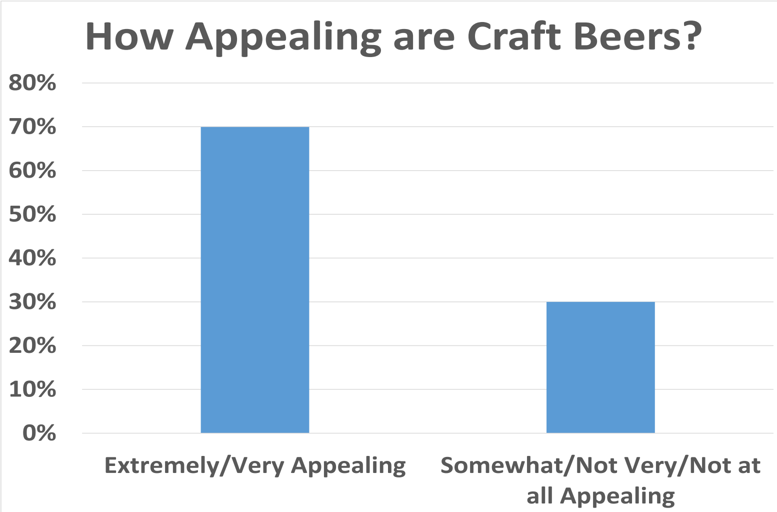
- The largest percent of respondents reported they had purchased domestic beer in the past 3 months (71%)

- Craft beer was a close second at 68%, and imported came in at 60%, demonstrating a fairly constant distribution of responses

Price Range for Six Pack Purchases	
$0-$2.49	0%
$2.50-$4.99	1%
$5.00-$6.49	6%
$6.50-$7.99	23%
$8.00-$9.49	40%
$9.50-$10.99	23%
$11.00+	5%

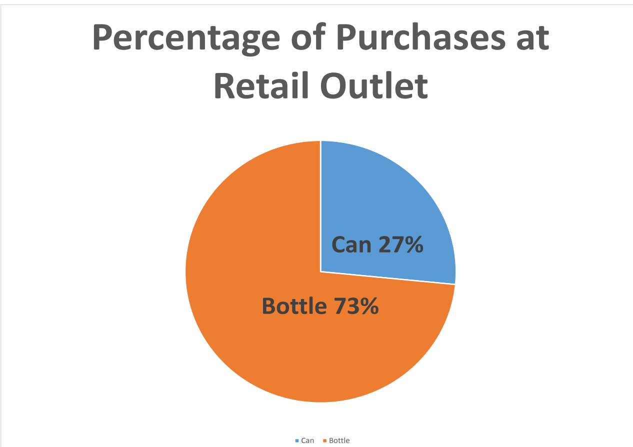
- The most common purchased six pack was in the price range of $8.00-$9.49 at 40%

- The price ranges directly below and above the $8.00-$9.49 range had the exact same results at 23% a piece



- A majority of respondents said craft beers are either extremely or very appealing to them (70%)

- The other 30% comprised of respondents who said craft beers were either somewhat appealing, not very appealing, or not at all appealing,



- About 3/4 of beer purchases in retail outlets were in the form of a bottle compared to 1/4 in cans

Percentage of Purchases Consisting of Craft Beers		
Percentage Range	**Retail Outlet**	**Bar/Restaurant**
0%-19%	32%	23%
20%-39%	20%	15%
40%-59%	12%	14%
60%-79%	14%	23%
80%-100%	23%	26%

-For retail outlet purchases, a majority of respondents at 32% stated that 0%-19% of their purchases were craft beers, while 23% stated 80%-100% consisted of craft beers

-Bar/Restaurants saw a fairly even distribution with 26% responding that 80%-100% of purchases were craft beers and 23% responding with 0%-19%

Total Amount of Beer Purchased/Month	Maximum Response	Average
Money Spent in Typical Month	$250	$35.26
12 oz Bottles/Cans Purchased in Typical Month	200	21.335

-As an entire population, the average amount spent on beer in a typical month was $35.26. Most respondents purchased about twenty-one 12 oz. bottles/cans of beer in a month.

Top Desirability for Each Figure		
Feature	**Top Response**	**Percent**
Prestigious Brand	Somewhat Desirable	36%
Creative Label	Somewhat Desirable	32%
Locally Produced	Very Desirable	34%
Inexpensive	Somewhat Desirable	36%
Recommended by Friends	Very Desirable	51%
High Alcohol Content	Somewhat Desirable	29%
On Sale	Very Desirable	30%
Packaged in a Bottle	Very Desirable	45%
Made by a Craft Brewer	Very Desirable	32%
Environmentally Friendly Package	Somewhat Desirable	28%

- The most desirable trait for any beer purchase is one recommended by friends. This category most commonly received responses of "very desirable" at 51%

-The least desirable trait for purchasing beer is one with an environmentally friendly package. The top response for this category was somewhat desirable at 28%.

Preferred Form of Packaging Based on Perception		
Description	**Preference (Bottle/Can)**	**Percent**
Interesting Label Design	Bottle	62%
Drinking Convenience	Can	76%
More Environmentally Friendly	Can	53%
Better Feel in Hand	Bottle	88%
Embodies idea of "craft beer"	Bottle	95%
Cheaper Product	Can	84%
Better Taste	Bottle	92%
Overall Appeal	Bottle	87%

-95% of respondents said that bottles embody the idea of a "craft beer" more than cans

-Collectively, it appears that bottles are favored over cans based on the descriptions

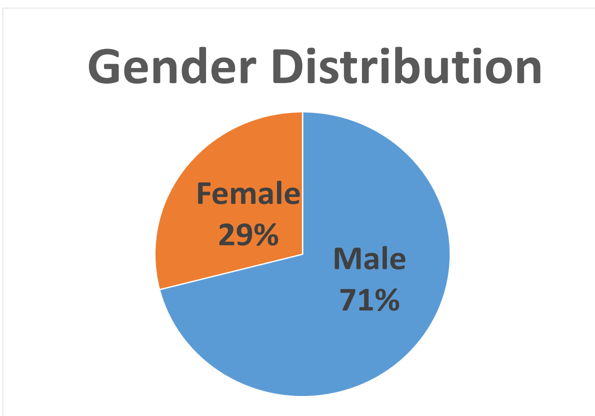
-Cans received a majority of responses on three out of the eight descriptions: drinking convenience (76%), more environmentally friendly (53%), and cheaper product (84%)

-It appears that consumers see cans as a cheaper and more convenient form of drinking beer rather than something representing a premium craft beer product

Level of Willingness to Purchase Craft Beers in Can (Change in Top 3)		
	Before	After
Certain Will Buy (99 chances in 100)	5%	11%
Almost Sure Will Buy (90 chances in 100)	12%	18%
Very Probably Will Buy (80 chances in 100)	19%	30%

-It appears that creating further consumer awareness about the beneficial aspects of cans vs. bottles would increase the purchasing of craft beers in cans

-After reading the information provided, 59% of the respondents said they were either "certain to buy," "almost sure to buy," or "very probable to buy." This means that 59% of the respondents were at least 80% sure they would be willing to purchase craft beers in cans



-A strong majority of the respondents were male (71%)

Income Before Taxes	
unemployed/student	16%
under $10,000	9%
$10,000-$14,999	4%
$15,000-$19,999	2%
$20000-$24,999	0%
$25,000-$29,999	4%
$30,000-$34,999	3%
$35,000-$39,999	4%
$40,000-$49,999	1%
$50,000-$59,999	5%
$60,000-$74,999	7%
$75,000-$149,000	14%
$150,000 or more	30%

-The largest percentage of respondents had a total annual income before taxes of $150,000 or more- 30%

-The next closest group were individuals that were either unemployed or students- 16%

Testing the Hypothesis:

"The millennial demographic (21-33) is more open to purchasing craft beers in cans than other age groups. Creating consumer awareness amongst both millennials and non-millennials highlighting the beneficial aspects of cans versus bottles will further enhance their willingness to purchase."

**In order to test the hypothesis, the data was recoded into the following groups: millennials (21-33) and non-millennials (34+)*

**Strength of correlation was determined as followed: P-value <.1 significant*

P-value <.05 very significant

Question: Which of the following products have you purchased the past three months? (Chi Square Variance Test)

Type of Beer	Millennial	Non-Millennial	P-Value
Domestic	76.5%	62.3%	0.064
Imported	55.3%	70.5%	0.063
Craft	72.9%	63.9%	0.245

Observations: Millennials purchased significantly more domestic beer over the past three months and non-millenials purchased more imported beer. There was no statistically significant correlation between the two age groups and craft beer purchases.

Question: On average, how much money do you spend on beer in a typical month? How many 12 oz. bottles/cans of beer do you purchase in a typical month? (Independent Sample T Test)

	Millennials	Non-Millennials	P-Value
Money Spent in Typical Month	$35.26	$29.82	0.051
12 oz Bottles/Cans Purchased in Typical Month	21.19	17.64	0.209

Observations: Millennials spend a significantly more amount of money on beer in a typical month

Question: When purchasing a six pack of beer at a retail outlet, what price range do most of your purchases fall under? (Chi Square Variance Test)

	Millennials	Non-Millennials	P-Value
$2.50-$4.99	0.0%	1.8%	0.669
$5.00-$6.49	5.1%	7.1%	
$6.50-$7.99	24.4%	21.4%	
$8.00-$9.49	41.0%	37.5%	
$9.50-$10.99	20.5%	26.8%	
$11.00+	6.4%	1.8%	
I don' purchase 6 packs	2.6%	3.6%	

Observations: there is no significant correlation between age and the price range of six packs that respondents purchased.

Question: How appealing are craft beers to you? (Chi Square Variance Test)

	Millennials	Non-Millennials	P-Value
Extremely Appealing	**37.2%**	23.2%	0.018
Very Appealing	39.7%	37.5%	
Somewhat Appealing	16.7%	23.2%	
Not Very Appealing	1.3%	**14.3%**	
Not Appealing at All	5.1%	1.8%	

Observations: Millennials find craft beers to be much more appealing. A strong percentage of non-millennials reported that craft beers were not very appealing to them.

Question: Out of all the beer purchases made in the past three months at a retail and bar/restaurant, what percentage consisted of craft beers? (Chi Square Variance Test)

	Millennial (retail)	Non-Millennial (retail)	Millenial (bar/restaurant)	Non-Millennial (bar/restaurant)
0%-19%	32.0%	32.1%	22.4%	23.2%
20%-39%	18.7%	21.4%	14.5%	16.1%
40%-59%	16.0%	5.4%	15.8%	8.9%
60%-79%	12.0%	16.1%	26.3%	17.9%
80%-100%	21.3%	25.0%	21.1%	33.9%
	P = .424		P = .370	

Observations: no significant correlation exists between one's age and the percentage of craft beer purchases at retail, bar, and restaurant establishments

Question: When purchasing beer at a retail outlet, what percentage of those purchases are in a can or bottle? (Chi Square Variance Test)

	Can	Bottle
Millennial	29.2%	68.9%
Non-Millennial	21.9%	78.4%
P-Value	0.118	0.048

Observations: Non-millennials purchase significantly more bottles compared to millennials

Question: What is your desirability of each beer feature? (Chi Square Variance Test)

	Millennial	Non-Millennial	P-Value
Recommended by Friends	4.12	3.73	0.026
Packaged in Bottle	3.49	3.73	0.202
Made by a Craft Brewer	3.7	3.43	0.191
Locally Produced	3.72	3.29	0.042
On Sale	3.68	3.07	0.003
Prestigious Brand	3.41	3.13	0.16
Creative Label	3.47	2.8	0.00
Inexpensive	3.47	2.56	0.00
High Alcohol Content	3.53	2.38	0.00
Environmentally Friendly Package	2.83	2.7	0.539

Observations: Although both millennials and non-millennials rated “recommended by friends” as the most important feature, it got a significantly higher rating by millennials. Millennials also rated “locally produced,” “on sale,” “creative label,” “inexpensive,” and “high alcohol content” significantly higher than non-millennials.

Question: Sierra Nevada Brewing Company, Boston Beer, and New Belgium Brewing Companies comprise a long list of craft breweries implementing cans to their packaging lines. What is your level of willingness to purchase craft beers in cans? (Chi Square Variance Test)

Level of Willingness	Millennial	Non-Millennial
Certain Will Buy (99/100)	2.7%	7.1%
Almost Sure Will Buy (90/100)	17.3%	3.6%
Very Probably Will Buy (80/100)	17.3%	21.4%
Probably Will Buy (70/100)	14.7%	10.7%
Good Possibility (60/100)	16.0%	3.6%
Fairly Good Possibility (50/100)	4.0%	8.9%
Fair Possbility Will Buy (40/100)	4.0%	7.1%
Some Possibility (30/100)	6.7%	7.1%
Slight Possibility (20/100)	4.0%	3.6%
Very Slight Possibility (10/100)	10.7%	12.5%
No Chance You Will Buy (0/100)	2.7%	14.3%
P Value	0.033	

Observations: The data shows that non-millennials had a higher percentage of responses indicating they would “certainly buy.” However, millennials scored much higher in the category of “almost sure will buy” at 17.3% compared to 3.6%. The next biggest variance in percentage of responses fell under the “no chance you will buy.” 14.3% of non-millennials said there was 0% chance they would purchase a craft beer in cans while only 2.7% of millennials provided this response.

**Although our data was technically “significant” with a p-value of .033, it is somewhat difficult to fairly interpret the results. Therefore, another chi square test was run after recoding the data into two subgroups (1: respondents answering with a 70% chance or higher and 2: respondents answering 60% or lower)*

Results:

Level of Willingness		Millennial	Non-Millennial
Certain Will Buy	(99/100)	52.0%	42.9%
Almost Sure Will Buy	(90/100)		
Very Probably Will Buy	(80/100)		
Probably Will Buy	(70/100)		
Good Possibility	(60/100)	48.0%	57.1%
Fairly Good Possibility	(50/100)		
Fair Possbility Will Buy	(40/100)		
Some Possibility	(30/100)		
Slight Possibility	(20/100)		
Very Slight Possibility	(10/100)		
No Chance You Will Buy	(0/100)		
P Value		0.195	

Observations: Overall, millennials are more open to purchasing craft beers in cans. However, the results are not strong enough to determine there is a significant difference between the two age groups. When the test was done again at an 80% confidence level, the results were even less significant with a p-value of .334

Question: Which form of packaging do you prefer for each of the following statements? (Chi Square Variance Test)

Statement		Millennial	Non-Millennial	P-Value
Interesting Label Design	Can	41.4%	34.5%	0.275
	Bottle	58.6%	65.5%	
Drinking Convenience	Can	70.4%	83.3%	0.071
	Bottle	29.6%	16.7%	
More Environmentally Friendly	Can	55.7%	50.0%	0.326
	Bottle	44.3%	50.0%	
Better Feel in Hand	Can	9.9%	14.8%	0.284
	Bottle	90.1%	85.2%	
Embodies Idea of Craft Beer	Can	4.3%	5.5%	0.54
	Bottle	95.7%	94.5%	
Cheaper Product	Can	80.0%	90.4%	0.093
	Bottle	20.0%	9.6%	
Better Taste	Can	5.7%	11.1%	0.222
	Bottle	94.3%	88.9%	
Overall Appeal	Can	11.4%	14.5%	0.399
	Bottle	88.6%	85.5%	

Observations: Both millennials and non-millennials ranked bottles considerably higher than cans for the category of overall appeal. Two of the statements had statistically significant results. Non-millennials rated cans higher for "drinking convenience" and "cheaper product." Overall, millennials and non-millennials voted very similarly on the form of packaging they best felt fit the various statements.

Question: How does reading the facts comparing cans vs. bottles affect your level of willingness to purchase canned craft beers? (Chi Square Variance Test)

Level of Willingness	Millennial	Non-Millennial
Certain Will Buy (99/100)	11.4%	10.7%
Almost Sure Will Buy (90/100)	21.4%	14.3%
Very Probably Will Buy (80/100)	32.9%	26.8%
Good Possibility (60/100)	14.3%	7.1%
Fairly Good Possibility (50/100)	5.7%	16.1%
Fair Possbility Will Buy (40/100)	2.9%	3.6%
Some Possibility (30/100)	5.7%	1.8%
Slight Possibility (20/100)	4.3%	1.8%
Very Slight Possibility (10/100)	1.4%	10.7%
No Chance You Will Buy (0/100)	0%	7.1%
P Value	0.04	

Observations: A higher percentage of millennials stated they would “almost surely buy” craft beers in cans. Looking at the “very slight possibility” and “no chance you will buy” categories provides very interesting results as well. 17.1% of non-millennials responded with one of these two compared to only 1.4% of the millennial population.

**Similar to question 11, the data was recoded to compare responses of 80% or higher against the rest of the responses*

Level of Willingness	Millennial	Non-Millennial
Certain Will Buy (99/100) Almost Sure Will Buy (90/100) Very Probably Will Buy (80/100)	65.7%	51.8%
Good Possibility (60/100) Fairly Good Possibility (50/100) Fair Possbility Will Buy (40/100) Some Possibility (30/100) Slight Possibility (20/100) Very Slight Possibility (10/100) No Chance You Will Buy (0/100)	34.3%	48.2%
P Value	0.081	

Observations: When looking at the data with an 80% confidence level, millennials are significantly more likely to purchase craft beers in cans at 65.7% compared to 34.4%. Both levels of willingness to purchase increased after the respondents read the facts comparing bottles and cans.

<u>*Question:*</u> Are you male or female? (Chi Square Variance Test)

Gender	Millennial	Non-Millenials
Male	58.0%	88.2%
Female	42.0%	11.8%
P Value	0.000	

Observations: Non-millennials were predominately male at 88.2%. The gender of millennials was much more evenly distributed.

Question: What is your household income before taxes? (Chi Square Variance Test)

Income Range	Millennial	Non-Millennial
unemployed/student	28.2%	0%
under $10,000	15.5%	0%
$10,000-$14,999	7.0%	0%
$15,000-$19,999	4.2%	0%
$25,000-$29,999	7.0%	0%
$30,000-$34,999	5.6%	0%
$35,000-$39,999	5.6%	1.9%
$40,000-$49,999	1.4%	0%
$50,000-$59,999	8.5%	0%
$60,000-$74,999	5.6%	9.3%
$75,000-$149,000	7.0%	24.1%
$150,000 or more	4.2%	64.8%
P Value	0.000	

Observations: The highest percentage of millennials were either unemployed or students. A strong majority of non-millennials at 64.8% reported a household income of $150,000 or more. Not a single non-millennial responded that they had a household income of $34,999 or less.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECCOMENDATIONS

Summary

The statistical analysis shows that millennials spend significantly more money on beer monthly despite having much lower household incomes before taxes. Furthermore, they rated craft beers as much more appealing. It appears that millennials focus less on their beer being packaged in a bottle and care more about other features such as being recommended by friends, made by a craft brewer, high alcohol content, locally produced, and creative labels.

Results from question 12 provide a lot of insight on how both age groups perceive craft beers when comparing cans versus bottles. Both millennials and non-millennials rated bottles higher for all categories except drinking convenience, more environmentally friendly, and cheaper product. Both age groups rated bottles much higher for overall appeal and embodying the idea of a craft beer. Contrary to previous belief, the data analysis shows that perception has a minimal impact on ones openness to purchasing a craft beer in a can, especially for millennials. Further insight of this will be discussed in the upcoming conclusion section.

Conclusions

As hypothesized, the data analysis shows that millennials are more willing and open to purchasing craft beers in cans compared to the rest of the age demographic. 20% of millennials declared they were either certain or almost sure they would buy canned craft beers compared to only 10% of non-millennials. Furthermore, a much higher percentage of millenials declared there was no chance they would purchase canned craft beers.

The second part of the hypothesis stated that creating further consumer awareness about the beneficial aspects of cans over bottles would increase both age groups willingness to purchase canned craft beers. This was directly tested by question 13, which asked respondents to read the facts about cans and indicate their new level of willingness to purchase. Conclusions were based on the percentage change of responses that were either “certain will buy,” “almost sure will buy,” “or very probably will buy.” After reading the facts regarding cans, millennials answering with one of three responses increased from 37.3% to 65.7%, about a 76% increase. Likewise, non-millennials increased from 32.1% to 51.8%, a 61% increase. Therefore, we will fail to reject the second part of the null hypothesis as well and conclude that creating further consumer awareness about the beneficial aspects of canned craft beer versus bottles would further increase the purchasing likelihood of both millennials and older age groups.

Recommendations

Based on the survey results, it appears that craft brewers should shift some of their marketing approach towards the younger demographic (21-33). They should focus on the concept that their canned beer is a high alcohol, convenient, and environmentally friendly product at an affordable price. The consumer wants to be assured a canned beer can be guaranteed all these qualities without having a compromise of taste and maintaining its individuality.

Although craft brewers should clearly focus more of their attention on the millennial age demographic, by no means should they abandon older demographic consumers. The data demonstrates that effectively advertising the benefits of canned craft beer versus bottles could positively skew one's purchasing behavior. This concept applies to all age groups. Personally, I think craft brewers would be best off if they were able to effectively distinguish their canned beer as a more on-the-go and outdoor friendly product than bottled beer.

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Appendix A (Canned Craft Beer Survey)

1. Please select your age range

- Under 21
- a. 21-24
- b. 25-28
- c. 29-33
- d. 34-38
- e. 39-44
- f. 45-50
- g. 51-56
- h. 57-64
- i. 65+ years

2. Which of the following products have you purchased in the three months?

- Domestic beer
- Imported beer
- Craft beer
- None of the above

3. On average, how much money do you spend on beer in a typical month? ________

4. How many 12oz bottles/cans of beer do you purchase in a typical month? ________

5. When purchasing a six-pack of beer at a retail outlet, what price range do MOST of your purchases fall under?

- a. $0-$2.49
- b. $2.50-$4.99
- c. $5.00-$6.49
- d. $6.50-$7.99
- e. $8.00-$9.49
- f. $9.50-$10.99

- g. $11.00+
- h. I don't purchase 6 packs

6. How appealing are craft beers to you?

- Extremely Appealing
- Very Appealing
- Somewhat Appealing
- Not Very Appealing
- Not Appealing at All

7. Out of all the beer purchases made in the past three months at a RETAIL outlet, what percentage consisted of craft beers?

- a. 0%-19%
- b. 20%-39%
- c. 40%-59%
- d. 60%-79%
- e. 80%-100%

8. Out of all the beer purchases made in the past three months at a BAR OR RESTAURANT, what percentage consisted of craft beers?

- a. 0%-19%
- b. 20%-39%
- c. 40%-59%
- d. 60%-79%
- e. 80%-100%

9. When purchasing beer at a retail outlet, what percentage of those purchases are in a can or a bottle. (Please write a whole number from 0 to 100)

Can ______

Bottle ______

10. The following is a list of features people may look for when purchasing beer. Please indicate the desirability of each feature:

	Extremely Desirable	Very Desirable	Somewhat Desirable	Slightly Desirable	Not at All Desirable
Prestigious Brand	○	○	○	○	○
Creative Label	○	○	○	○	○
Locally Produced	○	○	○	○	○
Inexpensive	○	○	○	○	○
Recommended by Friends	○	○	○	○	○
High Alcohol Content	○	○	○	○	○
On sale	○	○	○	○	○
Packaged in Bottle	○	○	○	○	○
Made by a Craft Brewer	○	○	○	○	○
Environmentally Friendly Package	○	○	○	○	○

11. Sierra Nevada Brewing Company, Boston Beer (Sam Adams) and New Belgium Brewing Companies comprise a long list of craft breweries implementing cans to their packaging lines. Please indicate your willingness to purchase craft beers in cans

○ a. certain will buy (99 chances in 100)
○ b. almost sure will buy (90 chances in 100)
○ c. very probably will buy (80 chances in 100)
○ d. probably will buy (70 chances in 100)
○ e. good possibility (60 chances in 100)
○ f. fairly good possibility (50 chances in 100)
○ g. fair possibility will buy (40 chances in 100)
○ h. some possibility (30 chances in 100)
○ i. slight possibility (20 chances in 100)
○ j. very slight possibility (10 chances in 100)
○ k. no chance you will buy (0 chances in 100)

12. Based on the illustrations of beers sold in cans and bottle, please decide which form of packaging you prefer OVERALL on each of the statements. If unsure, base decision solely on you perception from the images shown above. Please go back to the images to

refresh your memory if you are not certain.

	Can	Bottle
Interesting label design	○	○
Drinking convenience ex. concerts, beach, hiking, etc.	○	○
More environmentally friendly package	○	○
Better feel in hand (according to experience)	○	○
Embodies idea of "craft beer"	○	○
Cheaper product	○	○
Better taste	○	○
Overall appeal	○	○

Please read the following information regarding aluminum cans and indicate your new level of willingness to purchase canned craft beers:

"The insides of most craft cans and lids used for high-end craft beers have a sprayed coating, ensuring that there is absolutely no contact between the beer and the aluminum"

"Cans actually protect beer from light and oxygen. Cans are airtight and oxygen-free. When light consistently hits a bottle of beer, it can turn skunky and ultimately undrinkable. Oxygen can also leach into a bottled beer under the bottle cap and affect the taste, which could potentially destroy the beer."

"Cans offer the best shipping efficiencies of any beverage package."

Many cities forbid bottles in public spaces such as parks and beaches.

Aluminum cans are 100% recyclable and has 68 % total recycled content, the highest of any beverage package material.

SOURCE: http: //www.cancentral.com/pdf/AluminumBeverageCanFacts.pdf

13. Based on the information provided above, please indicate your new level of willingness to purchase craft beers in cans

- certain will buy (99 chances in 100)
- almost sure will buy (90 chances in 100)
- very probably will buy (80 chances in 100)
- good possibility (60 chances in 100)
- fairly good possibility (50 chances in 100)
- fair possibility will buy (40 chances in 100)
- some possibility (30 chances in 100)
- slight possibility (20 chances in 100)
- very slight possibility (10 chances in 100)

- no chance will buy (0 chances in 100)

14. Are you male or female?

- Male
- Female

15. Which of the following ranges describes your household income before taxes?

- unemployed/student
- under $10,000
- $10,000-$14,999
- $15,000-$19,999
- $20,000-$24,999
- $25,000-$29,999
- $30,000-$34,999
- $35,000-$39,999
- $40,000-$49,999
- $50,000-$59,999
- $60,000-$74,999
- $75,000-$149,000
- $150,000 or more